

Production and supply of sweet sorghum seeds

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I. Introduction

Under the NAIP project activities, it was aimed to develop a community seed system (community seed program) for multiplication of farmer selected sweet sorghum cultivars seeds to enhance their availability and benefit the project farmers. As there are not many seed companies producing seed of sweet sorghum, a community seed program was developed to address sustainability issue of regular seed supply to farmer selected varieties after completion of the project. Hence, a community-based seed system model was developed and implemented in the project area.

II. General issues

The response from farmers to development initiatives varies from one place to another. Some of the factors motivating them as seed growers include a good harvest and increased income from the sale of seed. A poor harvest in the first season discourages them and lead them giving up. While some farmers do become self-reliant within a few seasons, it takes a minimum of five years to develop a sustainable community seed program. The first three years of the project focused on awareness and capacity building such as technical training in seed production, business skills, group dynamics, leadership and getting farmers to understand the seed production process. The last two years of the project were mainly concentrated on exit strategies or the final handing over of the management of seed production to the community. Some of the important activities during this last stage include taking farmers on orientation visits to places such as research stations, seed processing plants (for seed sources) and the State Seed Certification Agencies (SSCAs). These exposure visits acquaint the farmers with seed production and certification procedures and more so on confidence building and awareness on investments and expenses in meeting seed quality parameters. In addition, seed producers (farmers) should visit private. seed companies and other service providers (NGOs, KVKs) as they may act as potential market outlets.

III. The model

A basic model on community seed program developed involving consortium partners. Generally models developed for a specific area/village/region and crop may not yield the same result elsewhere because of the crop, the cropping systems, cultivars used, climatic conditions, variation in the willingness of the stakeholders, and socioeconomic status, political and perhaps biotic factors. The following steps were involved in developing community seed systems (CSS) for multiplication of selected sweet sorghum varieties and distribution to project farmers.

1. Reconnaissance survey

After identifying the areas of operation, the non-governmental organization (NGO) and project implementing agency (PIA) has carried out reconnaissance survey for seed needs assessment (SNA). There is a series of participatory dialogues to engage a community in a diagnosis of the problems relating to seed availability and to secure the community's commitment to develop and act on its own solutions. The SNA will also identify knowledge gaps that can be corrected during training programs. The SNA assisted communities in developing an action plan on what needs to be done, while remembering that the role of the NGO is only to facilitate this process.

2. Participatory selection of varieties

It is for the communities to identify the varieties to be multiplied. There is a tendency for farmers to select only improved Hybrids at the expense of important varieties. Facilitators should check this tendency. Locally adapted varieties would be ideal in the first year. This tends to increase the chances of success since farmers already have adequate experience growing them. The NGO should be proactive in promoting farmers' participation in the selection of varieties for a particular area/region/village.

3. Selection of seed growers

Once the varieties selected for multiplication have been identified through farmers' participatory selection, the community can select individuals who will be the seed growers. Since the seeds are known to be conserved and

multiplied mostly by women, it is only appropriate and advantageous that seed production of such crops be done by them. To help farmers carefully select their local seed growers, the NGOs can help facilitate a process developing criteria for selecting SHGs as seed growers. Some suggested criteria adopted in the intervention.

- He/she should be resident of the village and a member of SHG group
- Should be a farmer with land holding
- Willing to attend training programs without fail
- He/she should be friendly in nature and approachable to others
- Inclination to put in sincere efforts
- Must be willing to work in a team
- Experienced in growing one or more of the crops intended for multiplication.
- Must be honest and willing to repay seed loans
- Having such a set of criteria reduces bias and helps farmers to choose appropriate seed growers.

4. Capacity building

After seed growers have been identified, technical training followed. The seed growers are trained in basic seed production techniques including rules and regulations and seed certification methods, seed health management and seed storage and marketing. Training is enhanced by conducting an educational tour to ICRISAT and showed similar programs. This is an interaction of farmer-to-scientist and scientist to farmer learning. Farmers were trained in business skills and some basic group dynamics and leadership.

As with all farmers training, the trainer should be conversant with principles of adult learning and facilitation skills, SHG s were included in all training programs. Training was conducted by competent technical officers so long as they fully understand the basic seed production standards and the Seeds Act. For such innovation projects a consortium approach has yielded good results.

5. Procurement of basic seed and distribution

The NGO or farmers need to secure basic seed (Breeders/foundation seed) for their seed production activities. Basic seed can be difficult to secure. Therefore, ICRISAT and Directorate of sorghum Research (DSR) have been identified as

basic seed source. Where poor weather has affected the growing season, it would be imperative to arrange seed for the following season. It is advisable to subcontract breeders recognized by government or research organizations to produce basic seed in specified quantities. We have developed linkages between farmers association and public sector institutions (ICRISAT/DSR) to ensure timely supply of basic sweet sorghum seed.

In the absence of basic seed, a seed grower can plant certified seed, but only for one season. Thereafter farmers must secure basic seed for quality seed and long-term benefits.

6. Formation of seed growers' association

Some seed growers would certainly prefer to work as individuals but in seed growing, forming an association has the following advantages:

- Registration is cheaper for a group than for individuals. Farmers association (An NGO) or Self-help groups (SHGs) can take up this activity right away as they are registered community based organizations.
- It is cost-effective to work as a team when procuring basic seed and selling seed: There is the benefit of bulk buying and selling.
- Group contributions can be used for paying for activities such as crop inspections, seed sampling and testing.
- During the early years of seed growing the team is important for providing mutual support, encouragement and a collective voice.
- However, for farmers to work effectively as a group, needs assessment can determine whether they need to be trained in group dynamics, leadership, record keeping, conflict management and business skills.
- The seed growers association would be required, in the longer term, to mobilize funds to sustain their seed growing activities.

7. Seed marketing

The success of a community seed project lies in the ability of the seed growers to sell their produce. Some farmers have used field days, weekly village markets, village local market days, local newspaper as a way of advertising. Others have used public meetings and ceremonies in their villages to sell seed. Seed growers should be innovative in adopting ideas that are workable

within their rural setup. They, however, should be careful not to price their seed beyond the local farmers' willingness to pay.

Wherever possible, the project partners were helpful in linking farmers to credit institutions for short term crop loans. Seed storage is a big issue in the villages; a proper storage facility will encourage farmers to store seed for at least 6-8 months before they sell seed. A revolving fund facility in the project will be highly helpful to establish community seed system. This will enable community-based organizations for initial investments to buy inputs like breeders seed, chemicals, fertilizers, gunny bags for packing seed, and other seed storage materials and marketing requirements. The repayment of fund ensured after sale of seed, which will then generate new loans for resource-poor farmers. Some farmers do loan seed to other farmers, to be repaid later in the form of grain, labor or loaning livestock for field operations.

Farmers' knowledge and capacities were strengthened in the project villages to produce quality seeds to meet their own requirements in DCU area is a success story. Seed production method adopted by SHGs under technical guidance and supervision of ICRISAT, DSR has produced 1300 kg of ICSV 93046 variety seed and distributed to farmers in the cluster villages around the Ibrahimbad village in Medak district. The local newspaper has disseminated the NAIP project story had a good impact on marketing the seed produced by SHGs. Alternate uses of sweet sorghum for fodder and grain purpose has spread like wild fire and there is a great demand for seed in the peri-urban and Medak district private dairy farms and spreading to other areas of the state.

IV. Advantages

- Availability of seed of improved varieties in sufficient quantities within the village.
- Assured and timely supply of seed material to farmers.
- Decentralized seed production.
- Availability of improved-variety seed at lower prices.
- Improved seed delivery to resource-poor farmers.
- Reduced dependence on external seed sources and effective curbs on spurious seed trade.
- Good opportunity for SHGs to invest and develop a village seed enterprise.
- Encourages village-level trade and improves village economy.

- Social responsibility of seed production and delivery system.
- A step toward sustainable crop production.
- Avoid introduction of diseases carried through seed (seed-borne pathogens) produced and imported from other agro-ecoregions.
- Scope for farmer-participatory varietal selection and feedback to the scientific community on the performance of cultivars.
- Availability of true-to-type varieties and healthy seed within the reach of farmers at affordable prices.
- The probability of sustainability is high because involving farmers from the beginning of VSB establishment, seed production, storage and marketing through their own investment and sharing the benefits.

V. Constraints

- Willingness of farmers to adopt quality seed production practices.
- Additional investment for inputs in seed production.
- Buy-back assurance to farmers from Farmers' Associations (FA)/SHGs/ non governmental organizations (NGOs).
- Proper seed storage facilities and management at village level.
- Availability of funds with FA/SHGs/NGOs for seed procurement, packing, storage and transportation.
- Fixing minimum support price for seed procurement.
- Technical support for seed production and its monitoring.
- Responsibility of quality control aspects and monitoring of seed production.
- Availability, access and procurement of breeder seed from research institutes for seed production at regular intervals.

VI. Conclusion

Many development projects have used community level seed production as the starting point for commercial seed development. The results have been disappointing with little commercial sustainability. The reasons for this lack of success are two fold: a lack of attention to transaction costs (for making contracts for source seed, ensuring quality control and obtaining information) and a lack of experience and resources for marketing. Community-level seed projects need more appropriate goals to be successful, such as testing and disseminating new varieties, developing farmers' experimentation capacities, and forming better links between farmers and researchers.

The farmers' association in the project area and SHGs were trained in seed production methods has produced 1300kg of ICSV 93046 a sweet sorghum variety and sold seed to project farmers at the rate of Rs 50 kg⁻¹. With this experience of benefits from seed production farmers are enthusiastic about developing this initiative into a small-scale seed enterprise.

Farmers as seed producers can be quite efficient and some will have potential to expand as specialized, small-scale seed enterprises. Seed trade associations, government agribusiness promotion programs, and especially NGOs, SHGs, and Krishi Vignana Kendras (KVKs) have a potential role in promoting improvement in production, marketing and distribution systems for traditional farmers seed producers. Key to success in strengthening informal seed systems will be improving farmer and seed producer access to information on product and seed price and market options.

The approach involves farmer participation directly in the program, where the farmers are empowered to produce quality seeds and manage seed bank for the timely availability of seeds, under DCU area. The model 'community seed systems' can be promoted to avail quality seeds of sweet sorghum at right time and affordable prices for the resource poor farmers. The system will reduce the dependence on external seed sources and encourages village level trade improving village economy. The breeder seed supply linkages developed with public sector research institutions for long term benefits and sustain seed production activity is key to success in production of quality seed. For hybrid seed supply, farmers will be linked to private seed companies/agencies.